



Topic/Objective CHAPTER: 13 Pt 1

NAME:

Thunder Storm

Pd: 1 2 4 5 other

DATE

Essential Question

What are T_s ?

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Video Youtube

- Mr. Parr: Thunderstorms

Static

- at any given moment, there are nearly 2000 thunderstorms (T_s) in progress around the world. 30,000°-heated air

Conditions needed for a T_s severe

- 3 conditions **Must** exist:
 - 1.) Source of Moisture (H₂O vapor)
 - 2.) Lifting of Air Masses
↳ convection current → makes the air rise
 - 3.) the atmosphere becomes **Unstable** due to the temperature differences b/t the upper and lower part of a storm

Latent Heat

- This happens when moisture begins to condense and release its **Latent heat**.

- Rising cloud **MUST** stay **warmer** than the air around
- stored energy in water vapor that is **not** released to warm the atmosphere until **condensation** occurs.

Limit of T_s

- T_s are limited to duration and **Size**.

↳ Limit is ~18,000m ⇒ 59,055ft ⇒ 11 miles.



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NOTE Taking AREA:

Factors that determine Classification

- 3 Factors that determine the classification of a T₃ stage
 - 1) height limit
 - 2) Development
↳ cumulonimbus
 - 3) direction of movement

2 main types of T₃

T₃ #1: Frontal T₃ #2: Air-mass

Frontal T₃ - Frontal
- are produced by an advancing Cold Front and, more rarely, Warm Front



- Bully - Plow



- Wedge

SUMMARY:

- Forms as cold air pushes warm air up at a boundary between cold & warm air masses



T₃ pt 2

Essential Question

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

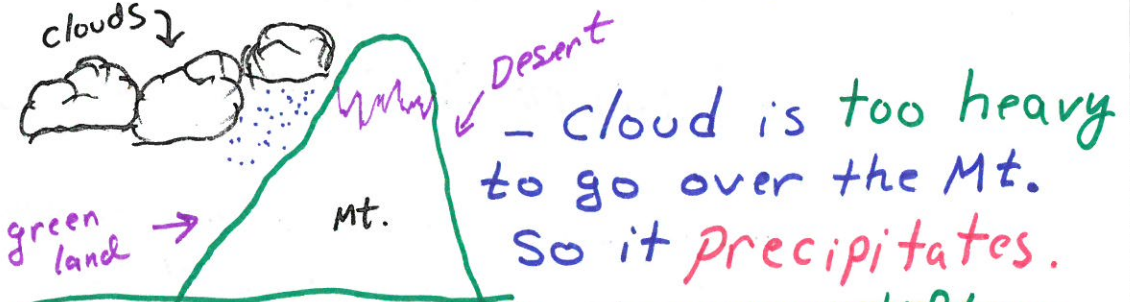
Air Mass T₃

- When Air rises due to **unequal heating** of **EARTH'S** surface a storm can occur beneath the Air mass.

2 types of Air Mass T₃

- 1) Mountain T₃
- 2) Sea/Land Breeze T₃

(1) Mt. T₃



Orographic lifting

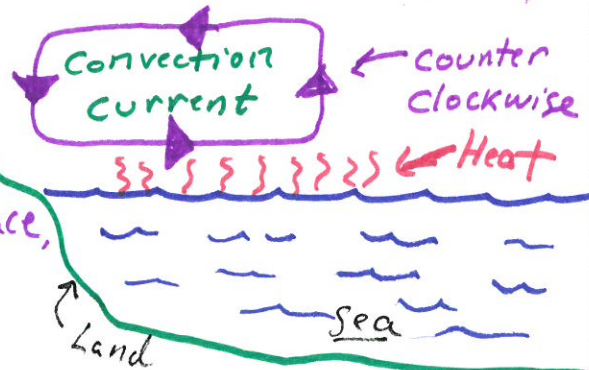
- this is called: Orographic lifting.

(2) Land Breeze T₃



Convection Current

- Warm air rises, expands, cools, sinks back toward the surface, where it reheat again





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NOTE Taking AREA:

2) Sea-Breeze

T↓

- Occurs b/c Land & water store & release thermal energy differently

- during the day, the temperature of Land rises faster than the temp. of H₂O

- @ night it is reversed (see other side for Land Breeze)

- forms because of temperature differences between the air over land and the air over water.

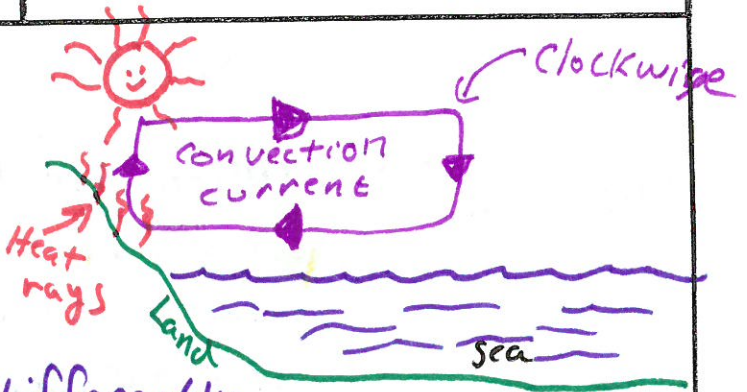
Who issues the Warning?

↳ National Weather Service

↳ NOAA

↳ voice of National Weather

SUMMARY:





Essential Question

Cue: Review: Thoughts: Main Idea

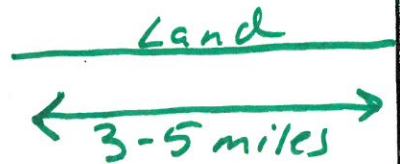
NOTE Taking AREA:

Development of a Thunderstorm

3 Stages

1) Cumulus Stage

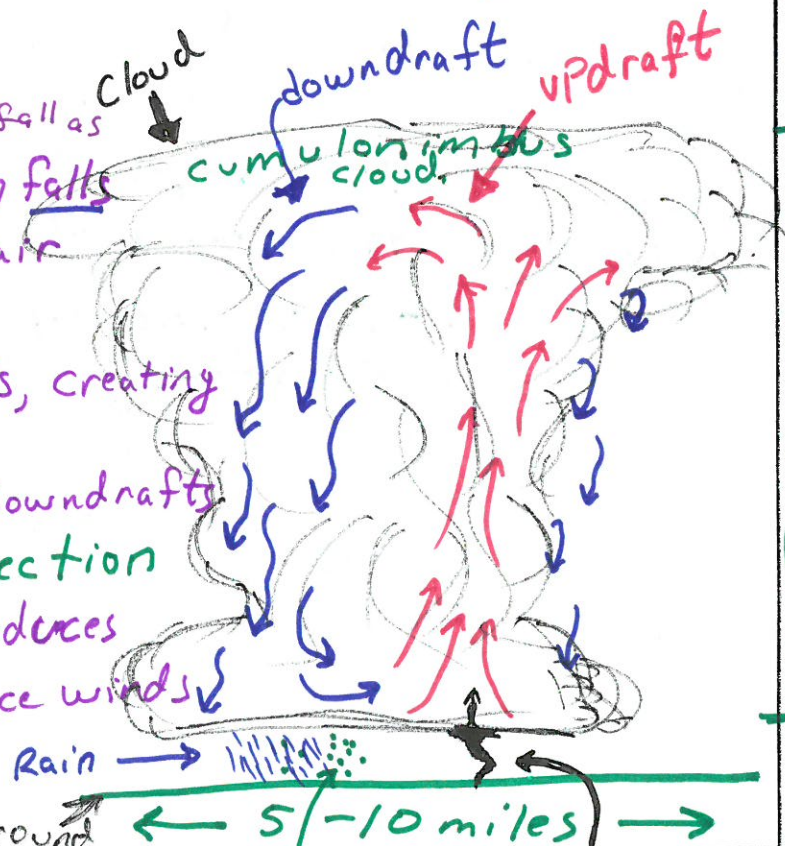
- Developing stage
- unequal heating of Earth's surface or an **ADVANCING** front, which causes air to rise



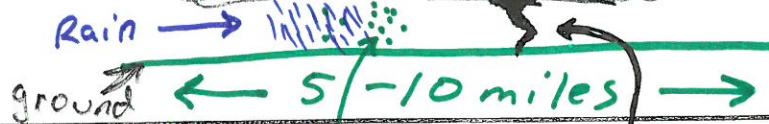
2) Mature Stage

Event that signals the start of this stage

- Precipitation falls
- it cools the air around it.
- cool air sinks, creating downdraft.
- updrafts & downdrafts form a **Convection Cell** that produces gusty surface winds



greatest vertical distance



NOTES CONTINUE ON OTHER SIDE

hailstones

Possible Tornado



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NOTE Taking AREA:

hail

Hailstone

- ball of ice caught in the convection cell (convection current) until gravity pulls the ice chunk to the ground.

3) (Last)
Dissipation
Stage

- cool downdrafts spread in ALL directions when they reach Earth's surface.



- Cools the areas from which the storm draws its energy, updrafts cease, and clouds NO longer form.

5-7 miles

What happens to the updrafts in this stage?

- NO longer form b/c downdrafts cut off the supply of warm air.

- thus the updrafts slows and eventually stop.

SUMMARY:

- because the downdrafts cooled the surface, cutting off the supply of warm, moist air.